Historic, archived document

Do not assume content reflects current
scientific knowledge, policies, or practices.

A381
R31A
Cop. 4

ARS-73-6
Supplement 1

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE

LIBRARY
CURRENT RECORD
JUL 16 1955
DEPARTMENT OF AGRICULTURE

PUBLICATIONS AND PATENTS

OF THE

EASTERN UTILIZATION RESEARCH BRANCH

January - June 1955

Single copies of available reprints may be obtained on request. At the time this list was prepared, the following were not available:

905, 906, 911, 916, 920, 933

When requesting reprints, please order by number.

Photostat copies of publications usually can be purchased at nominal cost through the Bibliofilm Service of the Library of the U. S. Department of Agriculture, Washington 25, D. C.

Publications and patents of the Eastern Utilization Research Branch issued before 1951 are listed in AIC-180 and Supplements 1 to 6; publications and patents from 1951 through June 1954 are listed in AIC-320 and Supplements 1 to 6; publications from July 1954 through December 1954 are listed in ARS-73-6.

This list includes an index which covers AIC-180 and supplements, AIC-320 and supplements, and ARS-73-6.

November 1955

Publications

897 Aceto, Nicholas C., Eisenhardt, Nelson H., Eskew, Roderick K., and Phillips, G. W. Macpherson.
STORAGE CHARACTERISTICS OF APPLE AND GRAPE JUICE FULL-FLAVOR SUPERCONCENTRATES. ARS-73-3, January 1955.
Shelf life of various packs of full-flavor apple juice and Concord grape juice 7-fold concentrates is given for a wide range of storage temperatures. The concentrates, hot packed in glass or suitably enameled cans and stored for one year at 73° F., still remained palatable and possessed the flavor characteristic of the fruit.

898 Bedford, C. L., and Robertson, W. F. (Agricultural Experiment Station, Michigan State College work done under Research and Marketing Act contract).
HARVEST MATURITY AND RIPENING OF PEACHES IN RELATION TO QUALITY OF THE CANNED AND FROZEN PRODUCTS. Michigan State College, Agricultural Experiment Station Bulletin No. 245, January 1955.
This bulletin reports the results of a 3-year RMA contract study on the post-harvest handling of Eastern freestone peaches for processing. Peaches harvested at a maturity requiring 3 to 7 days to ripen, give the highest quality and yield in both the canned and frozen product. Peaches ripened at 70° to 75° F. were found to have the best quality and this quality was maintained over a relatively long period of ripening.

899 Coleman, Joseph E., Knight, H. B., and Swern, Daniel
REACTIONS OF FATTY MATERIALS WITH OXYGEN. XVII. SOME OBSERVATIONS ON THE SECONDARY PRODUCTS OF AUTOXIDATION OF METHYL OLEATE. Journal of the American Oil Chemists' Society, vol. 32, p. 135-137. March 1955.
Methyl oleate, autoxidized for short and long periods of time, has been fractionated with urea. Evidence is presented which shows that in the autoxidation of methyl oleate substantially all of it undergoes single attack by oxygen (or peroxides) before any significant quantity of multiple attack occurs. Alpha, beta-unsaturated carbonyl compounds are among the important secondary products of autoxidation.

900 Coleman, Joseph E., and Swern, Daniel
REACTIONS OF FATTY MATERIALS WITH OXYGEN. XVIII. CATALYTIC HYDROGENATION OF AUTOXIDIZED METHYL OLEATE AND OLEIC ACID. PREPARATION OF MONOHYDROXY-STEARIC ACIDS. Journal of the American Oil Chemists' Society, vol. 32, p. 221-224, April 1955.
Autoxidation of methyl oleate and oleic acid beyond the peak peroxide values followed by catalytic hydrogenation gave mixed monohydroxystearic acids in high yield. For complete reduction of the double bond, and the carbonyl and oxirane groups, hydrogenation was conducted at about 150° and 150 pounds. Peroxides were reduced at room temperature. Catalysts used were palladium on carbon and Raney nickel.

90 Cordon, Theone C.
UNHAIRING OF HIDES AND SKINS BY AMYLASE PREPARATIONS. Journal of the American Leather Chemists Association, vol. 50, p. 270-274, June 1955.
Commercial amylases were found to be ineffective as unhairing agents for fresh hides. If the hide was first extracted with sodium chloride, however, then treated with amylase, the hair became loose in 1 or 2 days.

902 Dryden, E. C., Buch, M. L., and Hills, Claude H.
A STUDY OF COLOR CHANGE IN STORED APPLE JUICE CONCENTRATES. Food Technology, vol. 9, p. 264-268, May 1955.
Full-flavor 68°-69° Brix apple juice concentrates were stored at 5°, 25°, and 37.8° C. (41°, 77° and 100° F.) Measurements of color density were made at frequent intervals for periods up to a year and the color changes plotted graphically. The effects of ion-exchange and various other treatments of the juices before concentration upon the rate of darkening of the concentrates were demonstrated.

903 Filachione, E. M., Harris, E. H. Jr., and Luvisi, F. P.
PURIFICATION OF VEGETABLE TANNINS. Journal of the American Leather Chemists' Association, vol. 50, p. 301-308, June 1955.
Methyl ethyl ketone saturated with water appears to be a single organic solvent generally useful for purifying tannins. Tannins ranging from 88 to 95% purity were obtained by extraction of aqueous solutions of tannins from wattle, canaigre, hemlock, quebracho, sulfited quebracho, myrobalans, and gall nuts. Extracts of 70 to 80% purity were obtained from divi divi and cube and plantation gambier. The extraction efficiency was in the range of 40 to 97%, high tannin recovery was noted in the case of canaigre, myrobalans, tannic acid, and the gambiers. The methyl ethyl ketone-water azeotrope appears to be useful for extracting tannins from plant sources.

904 Fontaine, T. D., Schaffer, P. S., Doukas, H. M., Scott, W. E., Ma, R. M., and Turkot, V. A. (EURB), DeEds, Floyd and Wilson, R. H. (Western Utilization Research Branch). and Doolittle, S. P. (Horticultural Crops Research Branch).
TOMATO LEAVES, A POTENTIAL ALKALOID AND STEROL SOURCE. ARS-73-8, June 1955.
Tomatine, a glycosidal alkaloid, is obtained from the leaves and stems of certain species of tomato plants. The plants may be extracted either fresh or dried, with water or methanol. Procedures are given for the extraction and purification of tomatine and the preparation of derivatives and degradation compounds. Antifungal, insecticidal and growth stimulating properties are described. Results of toxicological and pharmacological investigations and the future possibilities for tomatine and related steroidal alkaloids are discussed.

905 Griffith, John Q. Jr. (John Q. Griffith, Jr. Research Foundation), and Krewson, Charles F., and Naghski, Joseph (EURB).
RUTIN AND RELATED FLAVONOIDS. CHEMISTRY, PHARMACOLOGY, CLINICAL APPLICATIONS. 283 pages. Mack Publishing Co., Easton, Pa. 1955.
Chapter 88 on "The Chemistry of Rutin and the Technology of Its Manufacture" is a comprehensive treatise on and condensation of material previously published by other investigators. It includes sections on the history of rutin, occurrence and analysis of rutin in plants, characterization of rutin, microcrystallography, solubility, solvate formation, optical rotation, hydrolysis, melting point and color tests, chromatography, gravimetric and spectrophotometric analytical methods, procedures for the analyses of rutin in tablets and in urine, production of rutin, preparation of buckwheat leaf meal, relation of buckwheat variety to rutin content, extraction of plant source materials, and purification of rutin.

906 Hand, D. B., Moyer, J. C., Ransford, J. R., Hening, J. C. (New York State Agricultural Experiment Station, Cornell University, Geneva. N. Y.), and Whittenberger, R. T. (EURB).
EFFECT OF PROCESSING CONDITIONS ON THE VISCOSITY OF TOMATO JUICE. Food Technology, vol 9, p. 228-235, May 1955.
The viscosity of tomato juice depends largely on the action of the finisher. The amount and character of suspended solids in a juice has a much greater effect on viscosity than does the amount of pectin in the juice serum.

907 Herb, S. F.
APPLICATION OF ULTRAVIOLET SPECTROPHOTOMETRY TO THE ANALYSIS OF FATS AND DERIVATIVES. Journal of the American Oil Chemists' Society, vol. 32, p. 153-158, March 1955.
Ultraviolet spectrophotometric methods for the analysis of the polyunsaturated acids in fats and oils are reviewed with special attention given to applications, sources of error, and limitations Recently published spectrophotometric data on certain polyunsaturated acids isolated from fish oils are discussed in relation to the possibility of extending the method to include these oils.

908 Hoover, Sam R., Jasewicz, Lenore, and Porges, Nandor
BIOCHEMICAL OXIDATION OF DAIRY WASTES. VI. RELATIONSHIP BETWEEN THE RATE OF PURIFICATION AND RATE OF OXIDATION. Proceedings of the Ninth Industrial Waste Conference May 10-12, 1954. Eng. Dept. Ext. Series, No. 87, Purdue Univ., p. 71-79, March 1955.
A comparison of the rate of removal of milk waste from solution by aerated sludge with the rate of oxidation shows that there is a non-oxidative storage of nutrients by the organisms in the initial portion of the time curve. The results are compared with previous studies on dairy waste and other organic wastes.

909 Hoover, Sam R., Viola, Samuel J., Korn, Alfred H., Mellon, Edward F.
PROTEIN OF THE GRAIN MEMBRANE OF CATTLE HIDE. Science, vol. 121, p. 672-673, May 6, 1955.
The grain membrane of cattle hide and calfskin is shown to be the amorphous matrix protein of reticular tissue A close resemblance between this material and elastin is noted.

910 Kramer, Amihud and Ogle, W. L (University of Maryland; work done under Research and Marketing Act contract).
FURTHER STUDIES ON THE EFFECT OF HEAT PROCESSING ON TOMATO JUICE COLOR. Food Technology, vol. 9, p. 177-179, April 1955.
A previous report under this project showed that color loss in tomato juice was proportional to the time and temperature of heating. An equation was developed relating color loss to temperature and time of heating under laboratory conditions The present study shows that this equation is valid under commercial conditions with variations in heating media, container sizes, and color of raw stock.

911 Krider, Merle M.
STEROIDAL SAPOGENINS, PRECURSORS OF CORTISONE. Minnesota Chemist, vol. 7, no.2, p. 7, 8, 10, 13, 23, March-April 1955.
A review article discussing the screening of plants for steroidal sapogenins and other constituents, and summarizing some results of this project.

912 Krider, Merle M., Branaman, Janet R. and Wall, Monroe E.
STEROIDAL SAPOGENINS. XVIII. PARTIAL HYDROLYSIS OF STEROIDAL SAPONINS OF YUCCA SCHIDIGERA. Journal of the American Chemical Society, vol. 77, p. 1238-1241, March 5, 1955.
Partial hydrolysis of the oligosaccharide moiety of water-soluble steroidal saponins produces water-insoluble intermediates. After collecting the intermediates by centrifuging or filtering, their hydrolysis to the aglycone, or sapogenin, is completed by refluxing with 2N HCl. The partial hydrolysis of yucca saponin can be produced by the action of native enzymes or of dilute hydrochloric or sulfuric acids. Products of enzymic cleavage were obtained in crystalline form and consisted primarily of sarsasapogenin linked to glucose-galactose oligosaccharides.

913 Naghski, J., and Willits, C. O.
MAPLE SIRUP IX. MICROORGANISMS AS A CAUSE OF PREMATURE STOPPAGE OF SAP FLOW FROM MAPLE TAP HOLES. Applied Microbiology, vol. 3, p. 149-151, May 1955.
Experimental evidence supports the hypothesis that premature stoppage of sap flow ("drying" of tap holes) is due to the growth of microorganisms within the tap holes, and not to actual drying. The relationship of microbial growth in tap holes to the quality and production of maple sap is discussed.

914 Naghski, J., Willits, C. O. and Porter, William L.
MAPLE SIRUP. VIII. A SIMPLE AND RAPID TEST FOR THE ANALYSIS OF MAPLE SIRUP FOR INVERT SUGAR. Food Research, vol. 20, p. 138-143, March-April 1955.
A simple, rapid threshold test for the approximate analysis of invert sugar in maple sirup is described. The method is based on the selection of sample dilutions such that, for any given percentage of invert, one dilution will give a positive color test while the adjacent higher dilution will give a negative test reaction. The test requires only a simple kit, obtainable from all drug stores, and such equipment as can be found in the home or processing plant.

915 Ogg, C. L.
REPORT ON THE GRAVIMETRIC MICRODETERMINATION OF SULFUR. Journal of the Association of Official Agricultural Chemists, vol. 38, p. 377-380, May 15, 1955.
The report presents the results of a collaborative study of two gravimetric procedures for determining the sulfate formed by Carius or catalytic combustion of materials containing sulfur. The single ignition procedure proved superior to that using a double ignition.

916 Ogg, C. L.
REPORT ON STANDARDIZATION OF MICROCHEMICAL METHODS. Journal of the Association of Official Agricultural Chemists, vol. 38, p. 365-367, May 15, 1955.
Referee's report on microchemical methods, including recommendations for action by the Society.

917 Port, William S., Jordan, Edmund F., Palm, William E., Witnauer, Lee P., Hansen, John E., and Swern, Daniel.
POLYMERIZABLE DERIVATIVES OF LONG-CHAIN FATTY ACIDS. VINYL STEARATE AND CO-POLYMERIZATION OF VINYL CHLORIDE WITH OTHER VINYL ESTERS. Industrial and Engineering Chemistry, vol. 47, p. 472-480, March, part 1, 1955.
Copolymers of vinyl chloride with vinyl stearate and with other vinyl esters were prepared and their mechanical, thermal, viscoelastic and viscous properties were determined. The data show that copolymers containing less than about 25 percent may be useful as improved rigid vinyls while those containing about 30-50 percent vinyl stearate may find use as flexible plastics where absolute permanence of the plasticizer is a requirement.

918 Ratchford, William P.
NEW WEALTH FROM AGRICULTURE. Journal of Chemical Education, vol. 32, p. 160-162, March 1955.
The utilization research branches of the Agricultural Research Service have made many contributions in the form of new products and processes based on agriculture. Some of these products and processes are now in commercial use, others are being studied by industry for adoption. Some of the commercial products are rutin, dextran, new textiles from cotton, frozen orange juice, new products from maple sirup, plasticizers from fats and oils, and animal fats in feeds.

919 Ricciuti, Constantine, Coleman, J.E., and Willits, C. O.
STATISTICAL COMPARISON OF THREE METHODS FOR DETERMINING ORGANIC PEROXIDES. Analytical Chemistry, vol. 27, p. 405-407, March 1955
A statistical comparison was made of the peroxide values obtained by a modified Wheeler iodide, the stannous chloride, and the polarographic methods for pure hydroperoxides and autoxidized methyl oleate. The study followed the Latin square experimental design, and the results were treated by the analysis of variance technique.

920 Riemenschneider, Roy W
OXIDATIVE RANCIDITY AND ANTIOXIDANTS. Handbook of Agricultural and Food Chemistry, Reinhold Publishing Co., p. 237-279, 1955.
The mechanism of autoxidation, role of antioxidants, and methods for evaluating antioxidants were discussed. Data showing comparative evaluation of antioxidants were presented, principal attention being given to those antioxidants which have been authorized for use in edible fats.

921 Robinson, James F., Woodward, C. F., and Hills, Claude H.
THE PREPARATION AND PRESERVATION OF APPLE CIDER ON THE FARM. ARS-73-5, April 1955.
Directions for the preparation and preservation of apple cider are provided for small-scale operators.

922 Rose, Arthur, and Sanders, William W. (Pennsylvania State University; work done under Research and Marketing Act contract).
VERTICAL UMBRELLA-TYPE AGITATOR TO PROMOTE SMOOTH BOILING IN VACUUM DISTILLATION. Analytical Chemistry, vol. 27, p. 331-332, February 1955.
The agitator consists of a vertical glass rod with glass inverted cup-shaped baffles sealed to the rod at intervals along its length and containing a soft iron core in its upper extremity. The operation is controlled by means of a variable timer and an external magnet. All the fatty acid esters and many of the acids and alcohols with even number of carbon atoms from C_6 to C_{18} inclusive have been boiled successfully without bumping and superheating at pressures varying from 1.0 to 735 mm. of Hg.

923 Rothman, Edward S., and Wall, Monroe E.
STEROIDAL SAPOGENINS. XXI. DEGRADATION OF HECOLOLACTONE ACETATE TO DERIVATIVES OF 12, 13-SECO-16-ALLOPREGNENE-3 beta, 13 alpha- DIOL-12-CARBOXY-20-ONE 12, 13-LACTONE. Journal of the American Chemical Society, vol. 77, p. 2228-2229, April 20, 1955.
The degradation of hecololactone acetate to the 12, 13-seco-16-allopregnene-20-ketone is described. The critical step in the procedure is the cleavage of the 16-acyloxy-20-ketone intermediate by means of a two-phase tertiary butyl alcohol-water-sodium bicarbonate mixture.

924 Rothman, Edward S., and Wall, Monroe E.
STEROIDAL SAPOGENINS. XXII. CONVERSION OF HECOGENIN ACETATE TO A HECOLOLACTONE DERIVATIVE WITH THE ADRENAL CORTICAL HORMONE SIDE CHAIN VIA ALLOPREGNANE-3beta, 17alpha, 21-TRIOL-12, 20-DIONE DIACETATE. Journal of the American Chemical Society, vol. 77, p. 2229-2233, April 20, 1955.
Allopregnane-3beta, 17alpha-diol-12, 20-dione 3-acetate is described as having physical properties different from those previously reported. This material was in turn converted to allopregnane-3beta, 17alpha, 21-triol-12, 20-dione 3,21-diacetate, a diketone, which suffers oxidative attack by perbenzoic acid only at the C-12 carbonyl group to form 12-carboxy-12, 13-seco-allopregnane-3beta, 13alpha, 17alpha, 21-tetrol-20-one 12, 13-lactone 3, 21-diacetate.

925 Saunders, D. H., Ricciuti, Constantine, and Swern, Daniel
REACTIONS OF FATTY MATERIALS WITH OXYGEN. XVI. RELATION OF HYDROPEROXIDE AND CHEMICAL PEROXIDE CONTENT TO TOTAL OXYGEN ABSORBED IN AUTOXIDATION OF METHYL OLEATE. Journal of the American Oil Chemists Society, vol. 32, p. 79-83, February 1955.
Methyl oleate has been autoxidized at 100°, 80° and 60° in the Barcroft-Warburg apparatus. Samples have been analyzed for total peroxide by the iodometric method and for hydroperoxide by the polarographic method. These peroxide values have been compared with each other and with total oxygen absorbed. It has been shown unequivocally that the major portion of the peroxides formed in the autoxidation of methyl oleate are hydroperoxides, confirming conclusions of recent investigators. A small but significant amount of non-hydroperoxidic peroxide appears to be formed concurrently.

926 Swern, Daniel
UREA AND THIOUREA COMPLEXES IN SEPARATING ORGANIC COMPOUNDS. Industrial and Engineering Chemistry, vol. 47, p. 216-221, February 1955.
The preparation and properties of urea and thiourea complexes, and their use in separating organic compounds, are reviewed.

927 Wall, Monroe E., Serota, Samuel, and Eddy, C. Roland
STEROIDAL SAPOGENINS. XVII. STEREOCHEMISTRY OF THE SPIROKETAL SIDE CHAIN. Journal of the American Chemical Society, vol. 77, p. 1230-1237, March 5, 1955.
Ethanol-acetic acid converts pseudosapogenins to a new series of 20-isosapogenins. These differ from natural sapogenins in conformation at C_{20}, and are more labile than the natural steroids. The configurations of sapogenins at C_{20}, C_{22}, and C_{25} have been established.

928 Wall, Monroe E., Serota, Samuel, and Witnauer, Lee P.
STEROIDAL SAPOGENINS. XXIV. THE HYDROCHLORIC ACID CATALYZED EQUILIBRATION OF 22xi, 25D- AND 22xi-25L-SPIROSTANES. Journal of the American Chemical Society, vol. 77, p. 3086-3089, June 5, 1955.
Prolonged heating of sarsasapogenin with ethanolic hydrochloric acid gives a mixture containing sarsasapogenin, smilagenin, and the corresponding delta^2- or delta^3-desoxy analogues. On studying the reaction with desoxysarsasapogenin and desoxysmilagenin, it was found that an equilibration occurs in both cases in which formation of the more stable smilagenin isomer is favored. The significance of these results in relation to methods for acidic hydrolysis of saponins and to the C_{22} and C_{25} configuration of the spiroketal side chain are discussed.

929 Weil, J. K., Bistline, R. G. Jr., and Stirton, A. J.
SYNTHETIC DETERGENTS FROM ANIMAL FATS. V. ESTERS FROM alpha-SULFONATED FATTY ACIDS AND SODIUM ISETHIONATE. Journal of the American Oil Chemists' Society. vol. 32, p. 370-372, June 1955.
Detergents and surface active agents containing two sulfo groups were synthesized from alpha-sulfonated palmitic, stearic, and behenic acids by reaction with sodium isethionate or with sodium 2-hydroxypropanesulfonate. The products are improved detergents in the presence of inorganic phosphates and sulfates, which act as "builders".

930 Weil, J. K., Stirton, A. J., and Maurer, E. W.
SYNTHETIC DETERGENTS FROM ANIMAL FATS. IV. SODIUM 9,10-DICHLOROOCTADECYL SULFATES. Journal of the American Oil Chemists' Society, vol. 32, p. 148-151, March 1955.
Sodium 9,10-dichlorooctadecyl sulfates, readily soluble surface active agents and detergents, were prepared by the chlorination and sulfation of oleyl and elaidyl alcohols. Tallow alcohols were chlorinated, and sulfated with chlorosulfonic acid, to give adequately soluble detergents and surface active agents.

931 Weil, Leopold and Seibles, Thomas S.
PHOTOOXIDATION OF CRYSTALLINE RIBONUCLEASE IN THE PRESENCE OF METHYLENE BLUE. Archives of Biochemistry and Biophysics, vol. 54, p. 368-377, February 1955.
Photooxidation of crystalline ribonuclease in the presence of methylene blue resulted in complete inactivation of the enzyme when three moles of oxygen were taken up per mole of enzyme. The resulting changes in the amino acid composition and physical properties of the enzyme were correlated with catalytic activity.

932 Wells, P. A.
RESEARCH OF THE DEPARTMENT OF AGRICULTURE ON PROCESSING OF MEATS. Proceedings 7th Research Conference of the American Meat Institute, Chicago, Ill., March 24-25, 1955.
A review of the research program on the utilization of meat and meat products in the Department of Agriculture; the broad objective of the research is to improve the products available to the consumer and to increase the consequent return to the farmer and processor through the development of better methods of processing and preservation.

933 Whittier, E. O.
DAIRY PRODUCTS FOR USE IN CANDIES. National Confectioners Association Bulletin, vol. 40, no 2, p. 13-14, April-June 1955.
The effects of milk fat, milk protein and milk sugar on flavor, body and texture of such candies as caramels and fudge are discussed. Fluid milk, evaporated milk, sweetened condensed milk, plain and sweetened condensed skim milk, sweetened condensed whey, dried whole milk, nonfat dry milk solids, and dried whey are the principal dairy products suitable for use in candies. Their composition, availability, and convenience for use are reviewed.

934 Willaman, J. J. (EURB) and Schubert, Bernice G. (Horticultural Crops Research Branch).
ALKALOID HUNTING. Econimic Botany, vol. 9, p. 141-159, April-June 1955.
A review of the present world-wide activity in seraching for new alkaloids and for new sources of alkaloids. A table gives the known occurrence or nonoccurrence of alkaloids in 235 plant families and 3814 species.

935 Willaman, J. J. (EURB) and Schubert, Bernice G. (Horticultural Crops Research Branch).
ALKALOID HUNTING. SUPPLEMENTAL TABLE OF GENERA. ARS-73-1, May 1955. (Processed).
In the article listed above (no. 934) was included a table of plant families, giving the number of species in the family and the number of species for which there is information on alkaloids, either presence or absence. A table of genera, with the same kinds of information, is provided as a supplement to that article.

936 Witnauer, L. P., Senti, F. R., (EURB), and Stern, M. D. (Temple University).
LIGHT SCATTERING INVESTIGATION OF POTATO AMYLOPECTIN. Journal of Polymer Science, vol. 16, p. 1-17, March 1955.
Light scattering measurements were made on potato amylopectin in water solutions and on acetylated amylopectin in several organic solvents. The results indicate that native potato amylopectin has a molecular weight of at least 10 million and probably more than 52 million, and that molecules of this magnitude probably exist in the potato starch granule and are not artifacts created from little "native" molecules under the experimental conditions that have been used.

937 Yanovsky, E.
THE AFTER-COOKING DISCOLORATION OF POTATOES -- A REVIEW. ARS-73-7, May 1955. (Processed).
The literature on after-cooking discoloration of potatoes is reviewed in 57 references. Various factors that have been suggested as contributing to this problem are considered. Methods of measuring the extent of discoloration and suggestions for preventing it are presented. Mechanism studies indicate that enzymatic and/or non-enzymatic (Maillard reaction) browning may take place simultaneously with after-cooking discoloration.

938 Zittle, Charles A., DellaMonica, Edward S., Custer, Jonathan H., and Krikorian, Ruth.
PURIFICATION OF HUMAN RED CELL ACETYLCHOLINESTERASE BY ELECTROPHORESIS, ULTRACENTRIFUGATION AND GRADIENT EXTRACTION. Archives of Biochemistry and Biophysics, vol. 56, p. 469-475, June 1955.
Purification of human red cell cholinesterase by means of electrophoresis on paper, ultracentrifugation and gradient extraction is described. By these means a protein is isolated that appears to be homogeneous in gradient extraction and free electrophoresis; however, reasons are given for believing that this is not the cholinesterase protein but a major protein with which the cholinesterase is tenaciously associated.

REPUBLICATION

802 Treadway, R. H. (EURB) and Olson, R. L. (Western Utilization Research Branch).
INDUSTRIALLY PEELED POTATOES AS A MARKETING PRODUCT. Livsmedels Teknik, vol. p. 17-20, February 1955 (in Swedish).
Methods of processing and packaging peeled potatoes for restaurant and institution trade are discussed.

1955

January - June

Patents

COPIES OF PATENTS MAY BE PURCHASED FROM

THE UNITED STATES PATENT OFFICE, WASHINGTON 25, D. C.

Fein, Martin L., Ratchford, William P., Filachione, Edward M., and Fisher, Charles H.
ACYLATED LACTAMIDES. U. S. Patent No. 2,700,616, issued January 25, 1955.

Filachione, Edward M., Fein, Martin L., and Harris, Edward H. Jr.
EXTRACTION OF LACTIC ACID. U. S. Patent No. 2,710,880, issued June 14, 1955.

Heisler, Edward G., and Hunter, Ann S.
DEHYDRATION OF POTATOES BY DIFFUSION. U. S. Patent No. 2,704,260, issued March 15, 1955.

Hipp, Norbert J., Groves, Merton L., and McMeekin, Thomas L.
SEPARATION OF ALPHA-, BETA- and GAMMA-CASEINS FROM WHOLE CASEIN. U. S. Patent No. 2,702,800, issued February 22, 1955.

Rehberg, Chessie E., and Fisher, Charles H.
PRODUCTION OF DICARBOXYLIC ACID ESTERS OF ALPHA-HYDROXYCARBOXYLIC ACID ESTERS. U. S. Patent No. 2,712,025, issued June 28, 1955.

Wall, Monroe E., and Krider, Merle M.
PURIFICATION AND SEPARATION OF SAPOGENINS BY ADSORPTION. U. S. Patent No. 2,711,408, issued June 21, 1955.

Index to publications listed in ARS-73-6 and Supplement 1, AIC-180 and Supplements 1 through 6, and AIC-320 and Supplements 1 through 6 (1939 through June 1955). The numbers refer to the numbers of the publications in the lists; for those with an asterisk, reprints were not available at the time the index was prepared.

I. FRUITS AND VEGETABLES

A. Apples and other eastern fruits

1. Apple essence; recovery and use
   78*, 201*, 322, 379*, 587, 752, 867*
2. Apple essence; composition
   442
3. Apple essence; alcohol content
   295, 404*, 478
4. Apple essence; dependence on apple variety
   250
5. Apple juice; cider
   24*, 26*, 43*, 251, 330, 339, 838, 921
6. Apple juice concentrate
   562, 563, 621, 818, 838, 897, 902
7. Apple sirup; apple butter; apple pomace
   37*, 79*, 81, 117*, 135, 246, 669.
8. Apple slices, apples in cooking
   214*, 252, 502, 547
9. Miscellaneous products from apples
   14*, 166*, 167*, 220*, 276, 573
10. Cherry processing
    657, 718, 734, 770, 775, 822
11. Fruit essences (other than apple)
    368, 379*, 404*, 416, 519, 587, 775, 791, 867*
12. Fruit essences from preserve manufacture
    641*, 715
13. Fruit juice concentrates (other than apple); fruit spreads
    469, 507, 621, 671, 775, 779, 897
14. Peaches
    898
15. Pectin and derivatives; pectases
    40, 64, 125, 149, 150*, 179, 184, 187, 202*, 219, 235, 340
    463, 468, 669
16. Powdered fruit juice
    819, 888

B. Potatoes

1. Allyl compounds (other than allyl starch)
   84, 137*, 139, 158, 203, 255, 298, 468, 598, 647
2. Allyl starch; preparation
   136, 137*, 138*, 197, 203, 237, 439, 451, 647, 811
3. Allyl starch; properties of coatings
   137*, 269, 439, 451, 613, 647, 754, 811
4. Feed
   304, 337, 561, 572, 620
5. Fermentation
   467, 600, 764

6. Potato amylopectin
714, 937
7. Potato analysis
872*
8. Potato flour
270, 304, 337, 400, 505, 561, 655
9. Potato granules; dried mashed potatoes; potato flakes
781, 865
10. Potato starch and other carbohydrates
77, 86, 313, 329, 347, 357, 359, 599, 601, 637, 655, 763
11. Potato growth
359
12. Potatoes; hydrolysis
476, 624
13. Potatoes; nutrition; cooking
810, 937
14. Potatoes; sloughing
509, 606
15. Potatoes; utilization
264, 323, 401, 599, 600
16. Prepeeled potatoes
384, 640, 792, 802
17. Starch and cellulose acetates
101, 157, 253
18. Starch and carbohydrate derivatives (other than allyl and acetate compounds)
99, 100, 159, 208, 286, 594, 595, 599, 614, 697
19. Starch factory wastes
305, 306, 764

C. Vegetables (other than potatoes); vegetable wastes

1. Chemicals from vegetable wastes
41*, 61*, 107, 189, 190, 266*, 296, 331, 402, 403, 543, 420
578, 630, 785, 789
2. Feed
54*, 105*, 126, 261, 325, 331, 353, 544, 670
3. Processing leafy materials
80, 119, 331, 425, 457, 670
4. Rutin
(a) Isolation from tobacco
65*, 905*
(b) Use in medicine
65*, 73, 173, 218, 335, 517, 522, 559, 631, 905*
(c) Isolation from plants (other than tobacco or buckwheat)
120, 228, 249, 268, 277, 302, 363, 517, 619, 737, 738, 905*
(d) Isolation from buckwheat
172, 175*, 248, 271, 301, 335, 336, 419, 425, 481, 517,
559, 682, 905*
(e) Bibliography
300, 516
(f) Physical properties
679, 683, 905*
(g) Analysis
256, 348, 381, 703, 704, 803, 905*
(h) Quercitin
744

5. Tomatoes
   670, 787, 904, 906*, 910
6. Vegetables and vegetable wastes; utilization
   15*, 74, 80, 239*, 242, 331, 576

II. SUGAR AND SPECIAL PLANTS

A. Honey

1. Analysis
   440, 710, 854, 855, 856
2. Chemistry
   768
3. Flavor modification
   443
4. Granulation
   605
5. Honey in Baking
   545, 602, 648, 698, 711, 736, 757, 758, 759
6. Honey products
   507, 545, 602, 711
7. Sources
   584, 602
8. Standards
   515
9. Sterilization
   667, 896
10. Utilization
    602, 711, 878, 895

B. Hides, tanning materials and leather

1. Alum retannage
   2, 35, 36, 334, 570, 862
2. Canaigre
   95, 96, 216, 217, 259, 279, 372, 466, 513, 536, 537, 693, 813, 815
3. Collagen
   283, 364, 461, 617, 879
4. Hide processing
   12, 13, 22, 30, 31, 49, 50, 209, 240, 299, 556, 722, 844, 901
5. Hide structure
   909
6. Leather; tanning; testing
   3*, 20*, 21*, 48, 181, 182, 215, 240, 299, 364, 553, 556, 705, 722, 813, 844, 864
7. Microbiology
   (a) Germicides
       5, 27*, 32*, 45*
   (b) Halophilic bacteria
       10, 11
   (c) Miscellaneous
       466, 546
8. Mold-proofing leather
   215, 229, 366
9. Vegetable tannins (other than canaigre)
   (a) Extraction
       51, 168, 247
   (b) Domestic sources
       4, 259, 592, 692, 843, 871

(c) Sumac
98, 118, 170, 180, 278, 365, 394, 557
(d) Other sources; processing
19, 28, 29*, 38*, 499, 719, 871, 903

C. Maple products
1. Chemistry
590, 687, 713, 882, 914
2. Maple products; equipment
446, 447, 607, 750
3. Maple sirup standards
411, 857
4. Microbiology
745, 913

D. Natural rubber investigations
62, 85, 108, 110, 127, 134, 162, 163, 164, 165, 174, 191, 212, 213

E. Sucrose
309, 407, 408, 452, 453, 454, 568, 614, 709, 769

F. Tobacco
1. Alkaloids
386, 658, 665
2. Aroma
512
3. Curing
82, 410, 808
4. Insecticides based on nicotine
123, 200, 224, 225, 265, 292, 293, 345, 479, 542, 579, 580, 633
5. Nicotiana rustica
16*, 363, 464, 623, 720
6. Nicotinamide; nicotinic acid, nicotinonitrile, nicotinic anhydride
55, 56, 111, 112, 114, 128, 244, 245, 355
7. Nicotine
(a) Analysis
355, 423, 448, 612, 808, 866
(b) Chemistry; photochemistry; derivatives
294, 355, 395, 415, 472, 506, 552, 756, 866
(c) Extraction; production
412, 459, 464, 465, 512, 552, 554
(d) Plant growth regulation
378
8. Myosmine
113, 124, 415
9. Tobacco seed oils
147
10. Utilization
17*, 18*, 34*, 39, 460*, 616

G. Uncultivated plants
1. Alkaloids
807, 904, 934, 935
2. Plant growth regulators
816, 817, 858, 875
3. Sapogenins; analysis; reactions
690, 694, 706, 707, 778, 797, 826, 845, 849, 850, 851, 852, 853, 911*, 923, 924, 927, 928

4. Sapogenins; hydrolysis
632, 695, 876, 912
5. Sapogenins; isolation
707, 804, 828, 851, 852, 892, 893
6. Utilization
608, 911

III. ANIMAL AND DAIRY PRODUCTS
A. Fats and Oils
1. Analysis
(a) For fatty materials
106, 199, 829, 842, 885
(b) For functional groups
236, 371, 438, 498, 500, 666
(c) By X-ray
406, 449, 510, 766
(d) By spectrophotometry
115, 116, 354, 438, 500, 501, 538, 539, 666, 674, 733, 788, 868*, 907
2. Ascorbic acid derivatives
60, 94, 106, 397
3. Bibliography
774
4. Cis-trans isomerism
438, 500, 527, 651
5. Detergents; soaps; surfactants
260, 352, 362, 441, 514, 649, 699, 805, 847, 890, 894, 929, 930
6. Elaidic acid
801*,
7. Epoxidation; epoxy compounds, hydroxylation
103, 123, 153, 154, 210, 211, 222, 233, 236, 262, 288, 289, 290, 350, 356, 396, 398, 503, 510, 539, 653, 700, 760*, 848
8. Fatty acid amides
351, 399, 591, 646, 691, 796
9. Fatty alcohols and derivatives
183, 211, 243, 254, 346, 510, 701, 805
10. Feeds
696, 746, 747, 755, 846*, 861, 886, 887
11. Formic acid addition
786, 826
12. Hot dip tinning
730
13. Lard oil, lard
92, 93, 232, 380, 421, 551, 717*, 782
14. Monomers and polymers
263, 321, 370, 504*, 588, 589, 652, 686, 795, 839, 917
15. Oleic acid, oleic esters; oleyl alcohol
33*, 97, 103, 104, 155, 156, 188, 233, 263, 320, 629*, 636, 701, 702, 786, 796, 800, 809, 825, 899, 900
16. Oxidation; peroxides; autoxidation
152, 231, 291, 371, 527, 577, 668, 799, 800, 809, 825, 834, 874*, 877*, 884, 899, 900, 919, 925
17. Plasticizers
441, 477, 891

18. Polyunsaturated compounds; isomerization
115, 116, 198, 354, 362, 393, 525, 530, 571, 650*, 674, 762, 848
19. Potato chip frying
645
20. Processing; fractionation
102, 156, 207, 393, 525, 558, 571, 681, 723, 724, 926
21. Reaction mechanisms
262, 291, 483
22. Reaction with lead tetraacetate
6, 7
23. Saturated acids; derivatives
9*, 528
24. Spectra
501, 538
25. Stability; antioxidants
58, 91, 92, 93, 94, 145, 146, 152, 183, 231, 232, 243, 254, 346
380, 421, 696, 746, 747, 834, 920*
26. Urea complexes
668, 678, 701, 702, 762, 899, 926
27. Utilization; research program
409, 458*, 511, 550, 551, 597, 645, 716, 761, 812, 860
28. Wool grease
593, 788, 883

B. Dairy Products
933*

C. Dairy Wastes
1. Aeration studies
475, 487, 526, 575, 627, 628, 676, 685, 735, 794, 824, 827*, 908
2. Carbon dioxide evaluation
684
3. Endogenous respiration
676, 783, 908
4. Oxygen demand measurements
426, 487, 586, 783, 823
5. Vitamin B_{12}
574, 626
6. Yeasts
488*, 533, 793

D. Meat
932

E. Milk proteins; animal proteins
1. Albumin
485, 731, 820
2. Alpha- and beta-lactoglobulin
42, 280, 319, 369, 376, 480, 486, 523, 603, 831, 832
3. Amino acids
196, 680, 740, 790
4. Analysis
52, 133, 382, 879
5. Casein fiber and plastics
63, 129, 141, 178, 287, 311, 312, 317, 373, 418, 424, 581, 873, 880
6. Caseins
109, 129, 160, 161, 221, 367, 374, 471, 473, 625, 675, 732, 739, 869, 873

7. Crystals
831
8. Derivatives
169, 194, 195
9. Enzymes
161, 221, 455, 456, 484, 549, 615*, 663, 664, 708, 751, 773*, 859, 931, 939
10. Hydrolysis
196, 548*
11. Molecular weights
524, 821, 869
12. Photooxidation
294, 603, 604, 708, 806, 931
13. Protein fibers
59, 85, 148, 204, 234, 382, 581
14. Reaction of borate
615*
15. Specific volumes
680, 832
16. Structure
821
17. Utilization; properties
308, 375*, 474, 567, 634, 830*
18. Water absorption
133, 226, 282, 315, 377, 417, 529, 582

F. Milk sugar and derivatives
1. Lactic acid
(a) Bibliography
46, 47*, 521
(b) Derivatives; acrylates; methacrylates
44*, 47*, 53*, 57, 67, 70, 72, 87, 89, 90, 142, 143, 144, 177, 186, 206*, 230, 274, 318, 390, 391, 392, 414, 431*, 496, 497, 569, 689
(c) Derivatives; esters; polymers
8*, 66, 69, 88, 122, 205, 258, 272, 273, 285, 303, 307, 388, 389, 413, 433, 434, 435, 436, 491, 492, 493, 494, 495, 564, 565, 642, 643, 672, 673,688
(d) Derivatives; nitrogen compounds
257, 349, 390, 427, 430, 489, 490, 535, 727, 728
(e) From molasses
741, 742, 743
(f) Polylactic acids and esters
68, 122, 193, 520, 635, 644
(g) Production; purification
176, 535, 725
(h) Utilization; properties
275, 308, 450*, 470, 622
2. Lactoprenes
71, 75, 76, 130, 131, 192, 223*, 241*, 281, 310, 314, 342, 343, 344, 388, 392, 518, 677, 729, 870
3. Lactose
308, 426, 474, 475, 487, 488, 533, 566, 575, 594, 595, 654
4. Unsaturated acids
798

IV. General

A. Analysis

1. Chromatography
   61*, 326, 327, 386, 393, 534, 585, 618, 840, 841, 881
2. General organic
   52, 55, 106, 125, 147, 236, 247, 267*, 358, 371, 385, 423, 437, 442, 498, 514, 586, 612, 658, 661, 919
3. Hydroxyl content
   140
4. Inorganic
   25*, 284, 514, 638, 915
5. Kjeldahl
   297, 316, 361, 422, 445, 540
6. Microprocedures (other than Kjeldahl)
   185, 332, 369, 383, 405, 444, 531, 532, 541, 596, 609, 611, 638, 639, 659, 660, 748, 749, 772, 835, 836*, 837, 881, 889*, 915, 916*
7. Moisture
   86, 133, 437, 610
8. Polarography
   661, 690, 753, 809, 919
9. Spectrophotometry
   115, 116, 229, 256, 354, 355, 438, 448, 50[illegible], 501, 538, 539, 651, 666, 674, 703, 712, 726, 776, 777, 788, 863, 866
10. X-ray
    382, 406, 449, 510, 697, 766

B. General Laboratory program
   1*, 23*, 238*, 324, 373, 583, 656, 767, 771, 918, 932

C. General Microbiology
   227, 296, 328, 478, 765

D. High Polymers; molecular weights
   151, 417, 462, 524, 569, 714, 721, 780, 814

E. Laboratory technique; apparatus, theory

1. Condenser
   247
2. Constant temperature bath
   121
3. Countercurrent distribution
   482
4. Distillation, boiling points
   297, 341, 387, 432, 784, 922
5. Electronic device
   428
6. Light scattering
   309, 662, 814, 821, 869, 936
7. Reaction mechanisms
   262, 483
8. Refractometer
   555
9. Sorption
   417
10. Vacuum control
    429
11. Water aspirator pumps
    338

F. Pilot-plant technique and apparatus
171, 324, 338, 560, 620

G. Presentation of Research Results
833